# THE PLANT DISEASE REPORTER

Issued By

## THE PLANT DISEASE SURVEY

Division of Mycology and Disease Survey

BUREAU OF PLANT INDUSTRY, SOILS, AND AGRICULTURAL ENGINEERING

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The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

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Plant Industry Station — Beltsville, Maryland
Volume 31 — July 15, 1947 — Number 7


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## NAMING OF SYNTHETIC FUNGICIDES

James G. Horsfall

Knorr (PDR 31: 211-212. 1947) has called attention to a critical situation presently confronting plant pathologists in the matter of common names of synthetic chemicals used as fungicides. This problem has recently been taken up by the general Committee on Fungicides of The American Phytopathological Society. Doctor Dwight Powell, of the University of Illinois, has agreed to set up a subcommittee to study the matter. Any and all thoughts on the subject would be gratefully accepted by Doctor Powell's subcommittee, I am sure.

Knorr's suggestion that "common names" be used, assumes that the name is in "common" usage. At present, there is no authority to decide on what is common usage; therefore, every "common" name that is coined, including use of letters, must drift around until it is either adopted or discarded.

Perhaps the Society could delegate to its Fungicide Committee the authority to choose "common names" and recommend their adoption. This Committee should, of course, work in collaboration with the Entomologists.

This problem is not confined, of course, to the field of plant protection but it is bothering the chemists as well. It is of particular concern at present to a committee of the National Research Council, which is attempting to codify all information extant on the relation between chemical structure and biological activity.

An English chemist has recently given a brilliant discussion of the problem (Dyson, G. M. Lecture on a New Notation for Organic Chemistry and its Application to Library and Indexing Problems. Published by the Chemical Society and Others. 30 Russell Sq. London, W. C. 1. 1946).

What Knorr calls "common names" he calls "trivial names." He says that they are useful and necessary, but that they lead to duplication and confusion. The Englishman proposes a punched-card code for actual indexing.

CONNECTICUT AGRICULTURAL EXPERIMENT STATION, NEW HAVEN

## OUTBREAK OF BROWN ROT BLOSSOM BLIGHT ON PEACHES IN MICHIGAN

Donald Cation

A severe epidemic of blossom blight, Sclerotinia [Monilinia] fructicola, was in evidence June 5 and 6 on peaches in Southwestern Michigan. An average of 85 to 90 percent loss of blossoms was general throughout Berrien County and the western portions of Van Buren and Allegan Counties which were surveyed. As weather conditions have been fairly uniform it is expected that similar conditions prevail in other sections of lower Michigan.

Several orchards which had received a prebloom spray of 2-100 liquid lime-sulfur had a somewhat reduced amount of infection, showing from 50 to 70 percent blight, but another receiving the same spray showed little benefit from the treatment. It is difficult to know whether to attribute reduced infection to better orchard sanitation, or sprays. In all cases no checks were left.

The reduction of yield is questionable in most orchards as 15 percent set is sufficient for a full crop. In most orchards very little hand thinning will be necessary. This may work some hardships on southern families who are moving in for expected thinning jobs.

Any additional curculio damage will result in a direct loss whereas in normal years a 10 or 20 percent drop from curculio would not necessarily reduce the final yield.

The amount of brown-rot infection is fairly uniform in the different orchards although low spots are more heavily infected and areas with good air circulation less infected.

Very few hanging mummies were present and it is believed the infection came largely from ascospores.

On May 21 a few of these same orchards were visited in company with John Vaughan. At that time peach trees were approximately in the petal-fall stage and were not yet showing infection. Apothecia were past their prime and were difficult to find in some of the orchards now heavily infected. However, a sweet cherry tree in one of the peach orchards was showing 100 percent blossom infection at that date.

Sweet cherries are reported seriously blighted throughout Berrien County, but not many were examined. Montmorency cherry trees showed rather heavy loss of crop in Berrien County attributable about equally to brown rot, poor pollination, and previous frost damage.

Several sweet cherry orchards examined June 8 at Shelby and Hart (Oceana County) showed about 50 percent loss resulting from brown rot blossom blight. Peaches were in the late blossom stage and were showing no infection.

Leaf curl, Taphrina deformans, is very severe in unsprayed peach orchards as the season has been excessively cold and wet.

MICHIGAN STATE COLLEGE
EAST LANSING, MICHIGAN

## REPORTS ON UNUSUAL DISEASE OCCURRENCES

### SCLEROSPORA MACROSPORA ON OATS IN LOUISIANA

By W. E. Cooper

Oat plants of the selection C. I. 4316 infected with Sclerospora macrospora Sacc. were collected on the Rice Experiment Station, Crowley, Louisiana, in late May, 1947. The symptoms and spore characteristics, including measurements, corresponded closely with those given by Miles and Epps, (Phytopathology 32: 867-878, 1932) in their report of the disease in Mississippi.

This constitutes the first report of the disease in Louisiana.

LOUISIANA STATE UNIVERSITY, BATON ROUGE

### ANTHRACNOSE ON BLUE LUPINE

By Coyt Wilson

In southern Alabama many fields of blue lupine (Lupinus angustifolius) are being severely damaged by anthracnose (Colletotrichum sp.). Greatest damage is to plants approaching maturity. In many fields all of the plants are infected and in some as much as 90 percent of the seed has been destroyed. Apparently this is the first time that anthracnose has occurred on cultivated lupines in sufficient amounts to attract attention. Weimer (Phytopath. 33: 249-252. 1943) observed an anthracnose on this host in an experimental field in Florida and mentioned its potential seriousness. He assigned the organism to Glomerella cingulata (Stonem) Spauld. & Schrenk.

Greatest damage observed in Alabama is to developing seed pods but all aerial portions of the plants are susceptible. On pods the first evidence of disease is the appearance of small more or less circular

sunken black spots. These enlarge rapidly and soon develop the pinkish or salmon-color centers characteristic of bean anthracnose. The spots usually coalesce and the entire pod becomes covered with acervuli. Seeds within infected pods are often infected and frequently the mycelium of the fungus can be seen growing over the surface. Most seeds in infected pods are shriveled.

The spores are hyaline, non-septate, and usually straight with rounded ends but a few are slightly curved. They measure approximately 6 x 17.5 microns. Brown unbranched setae about 70 microns long are fairly abundant.

The disease was not observed until after May 1. Consequently, lupines that were plowed under for soil-building purposes were not damaged to any extent. The greatest threat appears to be to the seed crop. A major factor responsible for the increasing use of lupines in southern Alabama is the ease with which seed has been grown locally; and any agency which reduces the seed crop is serious.
ALABAMA AGRICULTURAL EXPERIMENT STATION, AUBURN.

## BARLEY SCALD IN PENNSYLVANIA

By R. S. Kirby

Scald caused by Rhynchosporium secalis was found in a field of winter barley on May 29, at Lebanon, Lebanon County. This is a new disease for Pennsylvania.
PENNSYLVANIA STATE COLLEGE, STATE COLLEGE

## PROGRESS REPORT ON LATE BLIGHT

DEVELOPMENT OF TOMATO LATE BLIGHT RENEWED IN FLORIDA: No late blight was observed on experimental plantings of potato and tomato at Gainesville until about the last of May. This was considered to be due to the warm, dry weather that had prevailed up to that time, and it was anticipated that no blight would appear.

Beginning on May 22, rain fell each day through May 29, the daily amount ranging from .02 inches to 1.75 inches with a total of 3.86 for the period. The temperature for the period ranged from 91 to 68, with a mean maximum of 88.3 and a mean minimum of 68.7° F. After this period there was no more rain until June 11, and the temperature range was higher during this period. However, late blight was observed on tomatoes about the end of the rainy period and has continued to spread over the tomato plots. The potatoes were harvested before any signs of late blight appeared on them. Spores are being produced

in profusion since the rain on June 11.--W. B. Tisdale, Florida Agricultural Experiment Station, Gainesville, June 13.

LATE BLIGHT RESUMES ACTIVITY IN LOUISIANA: Late blight has again become very active in Louisiana. For a period of two weeks prior to May 20 the weather had been dry and warm and the blight had apparently been checked, especially on tomatoes. On May 20 a rain and drop in temperature followed by rain at 2- to 3-day intervals and cooler weather has caused the fungus to become active again. Late maturing potatoes are showing blight for the first time in perceptible amounts. In the past six days tomato plants in gardens planted next to infected potatoes have become severely infected. In two gardens the lower two-thirds of the leaves have been killed, and the fungus is still sporulating abundantly. In these two gardens the tomatoes are beginning to ripen. Infection was also found on the fruits. Several additional gardens have been observed that showed only a trace to light infection on tomatoes. -- C. W. Edgerton, Louisiana Agricultural Experiment Station, Baton Rouge, May 26.

LATE BLIGHT ON TOMATOES IN THE CRYSTAL SPRINGS AREA OF MISSISSIPPI: June 4 -- Late blight of tomato was found in one 2-acre field today in the vicinity of Crystal Springs. The disease had not assumed serious proportions but nearly all of the plants seen had up to 10 infected leaves. Early blight [Alternaria solani] was also prevalent. The two main varieties of tomatoes were Rutgers and Stokesdale, and the plants were shipped in from out-of-state the latter part of March. No potatoes were found within an eighth of a mile.

Weather conditions have been favorable lately for development of the disease. Temperature at night has been in the 60's and during the day not much above 80° F. Rainfall has been rather heavy for this season. Of a yearly average of about 56 inches, between 35 and 40 have fallen thus far. Because of excess of rainfall and low temperatures, tomatoes were set in the field nearly a month late. At present it looks as though picking season will start next week. Very early ones might be brought in this week.

June 12 -- Another field of tomatoes with late blight was found today. There was barely a trace of late blight; only occasional plants here and there had a few spotted leaves. The plants were staked and pruned to one stalk, and fruit was turning. The variety was a grower's selection from Early Detroit; in about 2 acres of plants. The plants were home-grown and the seed was untreated. There were a few rows of mature potatoes about 1/4 mile away; no symptoms of late blight were seen on these, however. No tomatoes were grown in this particular field but both potatoes and tomatoes were grown in a field just across the road, last year. It is not known whether or not late blight occurred in this adjacent field last year. Plants in this field are firing considerably with early blight. This field

is about 3 miles (as the crow flies) from the infected field found June 4.

The weather has warmed up (temperatures up to 87°) considerably and there has been no rainfall locally since the June 4 report. As of today, plants in the first field reported are in pretty good shape although late blight and early blight have fired the leaves considerably. Fruits with typical late blight rot are evident in the field. -- Douglas C. Bain, Truck Crops Experiment Station, Crystal Springs.

LATE BLIGHT CHECKED BY WEATHER IN SOUTH CAROLINA: Potato late blight has been largely halted by hot dry weather. Potato harvest is now well under way and no serious loss has occurred. It is estimated that the loss due to late blight is much less than 1 percent of the total crop.

Tomato late blight has appeared in the tomato growing section around Charleston. Its appearance was simultaneous with the appearance of potato blight in that area. There has been almost no rain, but a few heavy fogs have allowed the disease to spread slowly. Damage at present is negligible; more is not anticipated unless there is unseasonably cool weather in June. -- William M. Epps, South Carolina Truck Experiment Station, Charleston, June 9.

SCATTERED LATE BLIGHT IN NORTH CAROLINA: Late blight present in scattered amounts Coastal Plains area. Harvest now under way. -- James H. Jensen, North Carolina State College, Raleigh. Telegram, June 6.

LATE BLIGHT UNLIKELY TO DEVELOP IN EASTERN VIRGINIA: Weather conditions since forecasting began have been unfavorable for blight. Rainfall at Norfolk during the 2-week period beginning May 8 was only 0.33 inch, considerably less than necessary for blight. In 1938 and 1946 when late blight was important, more than 2.5 inches fell during the same 2-week period. During the week beginning May 22 0.91 inch was recorded, which benefited the potato and tomato crops but was not enough to favor the disease. (Summary of second and third forecasts, May 22, May 29).

There is very little chance that late blight will be important on potatoes and tomatoes this season. The weather conditions during the week beginning May 29 have continued to be unfavorable. Only 0.16 inch of rain was recorded by the Norfolk Weather Bureau Office during that week. This amount is considerably less than would be required for blight to develop. The 5-day weather forecast issued June 3 indicates only 0.3 inch of rain for the 5-day period. (Fourth Late Blight Forecast, June 5)

Two potato leaves affected with late blight were found in one of our experimental plots today. These leaves were on plants that were in a low corner of the field and surrounded on two sides by a windbreak. The field had been irrigated twice.

The lesions appeared to be about a week old. They were dry and fruiting bodies of the fungus were very sparse.

It is not considered that this isolated case of late blight indicates a general development of the disease. Undoubtedly blight occurs in isolated places where conditions are unusually favorable every year. The weather conditions continue to be generally unfavorable for an epiphytotic. (June 9) -- Harold T. Cook, Virginia Truck Experiment Station, Norfolk.

NEGATIVE REPORT FROM ARKANSAS: Up to the present time we have had no report of late blight on either potato or tomato this year. So far as the plant shipping industry is concerned the danger from this disease is practically over since very few plants will be shipped from now on. -- V. H. Young, University of Arkansas, Fayetteville, June 3.

POTATO LATE BLIGHT IN SOUTHWESTERN INDIANA: Late blight was found on potatoes near Boonville in southwestern Indiana, on May 22, by Warrick County Agent, B. T. Bond. He states it was difficult to find specimens. This is the third successive season that this particular commercial grower of early potatoes has encountered late blight. He is now dusting by airplane as the soil is entirely too wet to permit operation of ground machines. Rainfall in southwestern Indiana has been very favorable for late blight.

Late blight was very abundant on both late potatoes and tomatoes in southern Indiana in the fall of 1946. It is very likely that the tomato strain has been widely planted there this spring in home-grown seed potatoes. -- R. W. Samson, Agricultural Experiment Station, Purdue University, Lafayette. May 26.

TOMATO LATE BLIGHT IN TENNESSEE: Late blight of tomatoes was rather widely prevalent the early part of June following cool, rainy weather. Before damage became extensive, however, temperatures rose to the 90's accompanied by dry weather. Obviously no spread has occurred. Dusting with fixed copper in certain cases was found quite effective and will be widely practiced if weather conditions approach those favorable for the disease. -- J. C. Andes, University of Tennessee, Knoxville, June 11.

POTATO LATE BLIGHT IN WEST VIRGINIA: Late blight has been found (first report) on potatoes in a garden at Elkins, Randolph County, West Virginia, on June 10. The disease was stopped by the hot weather and as yet is not serious. No blight has been found on tomatoes. -- H. L. Barnett, West Virginia University, Morgantown, June 16.

NO LATE BLIGHT SO FAR IN PENNSYLVANIA: During the past two weeks Andrews, Bauer, Burke, Kirby, and Weaver have examined about 50 lots of tomato plants and over 50 tomato fields without finding any sign of late blight. The plants came from Georgia, South Carolina and some were home-grown. Some Alternaria early blight was found in many of the fields. -- R. S. Kirby, Pennsylvania State College, State College, June 2.

LATE BLIGHT ON LONG ISLAND, NEW YORK: Wells, County Agent, wires Gyrisko discovered seed-borne late blight on potatoes near Mattituck, Long Island on June 14. No other infections found to date. -- Charles Chupp, Cornell University, Ithaca. Telegram, June 19.

POTATO LATE BLIGHT IN MASSACHUSETTS: First case potato late blight seen today on cull pile in Franklin County. Sporulation heavy. -- O. C. Boyd, Massachusetts State College, Amherst. Telegram, June 12.

## PROGRESS REPORT ON TOBACCO BLUE MOLD

The following reports have been transmitted through S. A. Wingard, Chairman of the Tobacco Blue Mold Reporting Committee.

GEORGIA: 1947 Summary -- Blue mold was more destructive in flue-cured tobacco beds than in any previous year. To complicate matters, hard freezes following unusually mild weather in midwinter killed an estimated 35 percent of the flue-cured plants. Approximately 95 percent of unprotected and untreated plants were killed by cold and mold. In many instances mold killed over 95 percent of plants protected from cold. No plants were lost in sheltered beds thoroughly and frequently sprayed with Fermate or Bismuth subsalicylate. Many growers used only 2 pounds of Fermate per 100 gallons of water, or failed to spray thoroughly, and secured very poor disease control. Some few sprayed with concentrations of 8 pounds per 100 gallons and they got almost perfect disease control with no apparent plant injury. In extreme cases, more than 15 pounds of Fermate per 100 yards were used during the season. Bismuth caused considerable yellowing and stunting during cold weather, but gave good control and resulted in good beds at the proper time for transplanting. About 75 percent of flue-cured

growers sprayed or dusted to some extent, most of them spraying irregularly with Fermate. A shortage of fungicides interrupted spray and dust schedules. Because of this interruption, cold complications, and inefficient application, at least 75 percent of the flue-cured plants were lost. Enough plants were left to set substantially all the allotted acreage before May first. Weather conditions were most favorable for transplanting during the latter half of April, during which time the plants were ready to be put in the field. Excellent stands were obtained. The few fields set after May 3 developed poor stands and these remained spotted even after much resetting had been done. Slight mold infections developed in some early fields set the first of April with plants from South Florida.

Initial sources of inoculum in 1947 were volunteer plants in old beds where symptoms were reported from numerous locations as early as January 15. Very mild weather persisted during the first half of the winter and conditions were ideal for blue mold development and spread during January. Plant beds were sown in late December or early January and stands of plants were reported within ten days after sowing. Mold was first observed in a commercial plant bed January 28, although the grower reported seeing symptoms January 21. The disease became established in scattered beds throughout the area before February 5, at which time a severe freeze killed many tender seedlings. Unusually cold weather persisted from the fifth of February until after the first of April. During this period mold spread and developed slowly but was very destructive. The peak was reached the second and third weeks in March, although the fungus remained active in some beds for over six consecutive weeks.

Blue mold was not severe enough to reach a definite peak or to cause more than slight damage in the cigar wrapper area of Southwest Georgia. The disease was first observed there in a new bed February 13, yet an old bed one mile distant showed no symptoms as late as May first. No beds in the flue area escaped, whether new or old. Nearly all shade growers dusted with Fermate and most of these set their acreage before the first of May and before their beds became affected. Shade beds were well protected from cold and little frost damage was observed. -- John G. Gaines, Division of Tobacco, Medicinal and Special Crops, U. S. Bureau of Plant Industry, Soils, and Agricultural Engineering, Tifton. June 7.

TENNESSEE: Blue mold is rather prevalent in the Tennessee tobacco districts, but no serious losses are reported. To date the weather has not favored its spread, and dusting or spraying has not been necessary. Plants are about ready for setting. (May 21)

Tobacco is set in this State and blue mold will be of no further

consequence this year. The occurrence was widespread, but fortunately sudden changes in weather at the critical time arrested further development. No damage of consequence was reported. (June 12) -- J. O. Andes, University of Tennessee, Knoxville

MARYLAND: Blue mold is now widely distributed in Maryland.

Following the report of its first appearance in Maryland the weather turned cold. There was frost on the nights of May 7 through May 10 in most parts of the State. Frost injury to tobacco plants was not extensive and blue mold apparently spread little during that time. Since then the weather has been warmer with abundant rains and high relative humidity. During the week of May 12 the disease became widely distributed, but so far it is not causing serious losses. Many growers are spraying or dusting with Fermate. At the present time supplies of Fermate are adequate, but if blue mold weather continues a shortage is probable.

Plants are generally small and uneven in size and stands are irregular. Setting into the field will be about two weeks later than usual even if blue mold should not set the plants back farther. -- Carroll E. Cox, University of Maryland, College Park. May 20

PENNSYLVANIA: The first reports of disease in tobacco beds were received by county agents about May 20. Blue mold was not definitely confirmed until June 6. It is now generally distributed in Lancaster County. Many growers have sprayed or dusted and the damage at present is not serious. Planting to the field started about June 3 and is in full swing this week (June 9 to 14). Fermate has not been available in quantity since May 20 after the first reports of disease in the beds. The supply available this year, added to that in the hands of growers from 1946, was not adequate to meet the demand. Fermate is not available now. Bismuth subsalicylate has been used only in limited quantities. Dithane Z78 has become available and is being used.

Wildfire [ Pseudomonas tabacum ] was first seen on May 23. Since that date, this disease has spread and has caused most concern. A few growers have sprayed plants with Bordeaux.

Anthracnose [ Colletotrichum sp. ] was first collected May 29. This disease has been very destructive to young plants. In spray demonstrations Fermate and bismuth subsalicylate have prevented infection. -- L. O. Weaver, Pennsylvania State College, State College. June 10

CONNECTICUT: Mildew (blue mold) was found first in Connecticut in one bed in Enfield, June 3, 1947. This is a month later than last year and is surprising in view of the cold wet weather we had during the month of May. We estimate that over 90 percent of Connecticut beds have been systematically sprayed with Fermate since the first week in May and this probably accounts for the tardy appearance of mildew. A threatened shortage of Fermate did not develop since nearly all growers were able to get a supply. A few are using paradichlorobenzene. Nearly half the acreage is already set.

Wildfire has not yet been found.

Damage from excess ammonia in the bed soils has been wide spread. -- P. J. Anderson, Connecticut Tobacco Substation, Windsor. June 3.

MASSACHUSETTS: (May 26) A grower in Franklin County phoned that he first observed the disease in his bed on May 16 and that he was using PDB to eradicate the fungus. I was not able to verify the report until May 24. The case involves an old bed site in which the soil was not sterilized. He had been using Fermate at weekly intervals instead of twice weekly. Oldest plants will be ready to set about June 1.

In two previous years since downy mildew first appeared in the State (1937), first reports of the disease were made before May 16: on May 13 in 1938 and on May 15 in 1941. The first report date ranges from May 13-25. It is not surprising that primary infections should be rather early this year for the entire month of May has been characterized by cool, abnormally wet weather. The prolonged wet period of April 30 to May 5 no doubt set the stage for initial infections. Total rainfall for the month through May 25 is 4.48 inches with rain falling on 13 days.

The first report of wildfire has just been received from County Agent S. L. Burt of Franklin County, in a new bed site but old sashes and wall boards, and no copper sprays.

(June 4) Since the first observation, not a single additional infected bed has been reported in either of the three counties growing tobacco. This is rather surprising because the weather at the outset of the bed season appeared to be unusually favorable for the development of the disease, and in fact continued to be marked by frequent rains and cool temperatures.

The following factors may account at least in part for the scarcity of mildew so far with most growers right in the midst of setting their fields: (a) More beds than usual were steamed or gassed with chloropicrin; (b) more beds than usual were made in new locations; and (c)

decidedly more growers used Fermate spray this spring than in any past season.

Wildfire, on the other hand, is present in far more beds than in past seasons, and in spite of an unusual amount of publicity regarding preventative practices.

(June 13) With most of the tobacco acreage now set and stocking over under way, it is safe to report that we have experienced one of the lightest years for blue mold damage to tobacco beds since the disease appeared here in 1937. An occasional additional infected bed has been observed representing secondary infections occurring after plant pulling got under way. I would estimate beds sprayed with Fermate at from 80 to 90 percent. The formula used throughout was 1 lb.-50 gals., and the mixture in most cases was applied heavily with the same sprinkling can or watering pot used for watering the beds.

Seven cases of wildfire bed infection were observed in Franklin and Hampshire Counties. Most of these occurred on farms where the disease was observed last year. In only two instances where heavy infections occurred in fields last year did the beds remain free this year, and those were the only cases where the growers followed to a "T" the directions of prevention outlined in printed form. In most instances of infected beds this year, the sources of the disease organism appeared to be either untreated sashes and wall boards, unsterilized beds, or failure either to sterilize the entire bed area including the alleys between beds or to apply the early season sprays of copper fungicides. In two cases, trashy, uncleaned seed saved from infected fields appeared to furnish the source. Both of these occurred in new bed sites, soil not steamed or gassed. -- O. C. Boyd, Massachusetts State College, Amherst.

ONTARIO, CANADA: Since blue mold was first reported near Leamington in Essex County on May 18, it has been observed or reported in numerous other areas but mostly in the Old Tobacco Belt of Essex County. During the past week the disease has occurred in Middlesex County about 100 miles from Leamington and in Norfolk County about 160 miles from the first reported occurrence. It is strongly indicasted that the earliest case reported in Essex County and the first case in Norfolk County were both instances of overwintering of the causal organism. In each case the presence of weeds in the area of initial outbreak -- always at the edge of a bed -- indicated imperfect steaming. Also, in each case earliest affected seedlings manifested considerable stunting with leaves the size of a dime or a little larger and leaves were still in close contact with the soil. Areas surrounding initial outbreaks now show widespread infection but widespread infection was not apparent until nearly two weeks after earliest infection.

The supply of Fermate in Ontario is exhausted and only minor additional supplies have been obtained. About 80 percent of the flue growers in the new Tobacco Belt have been using Fermate. Many growers in Essex and Kent counties who have cotton-covered seedbeds are using PDB crystals. However, much difficulty has been experienced in persuading them to use this material correctly. Zerlate was used by some growers, and bismuth subsalicylate and Zinc Dithane is also being used by some in the absence of supplies of Fermate. Mild damage has been reported by the use of all materials, particularly bismuth subsalicylate. Seedlings are especially tender this year. Planting out is well under way in both the Old and New Belts of Ontario. -- L. W. Koch, Laboratory of Plant Pathology, Harrow. June 3.

## BRIEF NOTES ON PLANT DISEASES

### SEEDLING BLIGHT OF RICE

By E. C. Tullis

Many reports of failures of rice stands in Arkansas and Texas have come in during the past several weeks. In extreme cases as many as three sowings have been made in an effort to establish a stand.

Blighted seedlings, examined by the writer in Arkansas, were attacked by species of Fusarium. Others from Texas were attacked by species of Aspergillus. Many of the latter seedlings had hardly broken through the glumes before they were killed.

Seed treatment is advised to avoid these seedling losses. Fungicides such as Cuprocide, Arasan, and Phygon are recommended. The reluctance of growers to use these materials is largely due to personal irritation caused by the fungicides. It is to be hoped that Arasan SF, which is used in water suspension (slurry treatment), will prove to be adapted for use on rice as this method avoids the dusts that are objectionable in the use of the dust disinfectants.

Most of the plantings, in which the extreme losses have been found, were made in March. The extended cold period throughout February, March, and even up to May in Arkansas left the ground so cold that emergence was slower than usual. This cold weather has, no doubt, contributed much to the failure to secure stands. DIVISION OF CEREAL CROPS AND DISEASES, BUREAU OF PLANT INDUSTRY, SOILS, AND AGRICULTURAL ENGINEERING, BEAUMONT, TEXAS.

## LOOSE SMUT AND POWDERY MILDEW ON WHEAT AND BARLEY VERY SEVERE IN VIRGINIA

By S. B. Fenne

An unusual amount of loose smut has been observed this spring, Ustilago tritici on wheat, and Ustilago nuda on barley. Farmers in general are very much concerned about this. Some varieties of wheat have as much as 8 percent loose smut, and barley, 5 percent. Since there is such a large amount of loose smut this year, and since weather conditions for loose smut infection have been favorable this spring in many areas, there may be even more loose smut in the next year's crop.

Powdery mildew, Erysiphe graminis, has been unusually severe on wheat in most parts of the State. Weather conditions during the early part of the season were very favorable for powdery mildew. In most parts of the State infection could be found in every wheat field. Many fields showed 100 percent powdery mildew infection. Because of the unusually heavy infection in recent years, one is led to suspect that there may be a new race of the powdery mildew fungus present in Virginia.

Powdery mildew was also very severe on barley. Certain resistant varieties such as Wong and a few others showed very little or no powdery mildew; however, frequently, they have severe leaf spot. In many cases this leaf spot appeared to be caused by incipient infection of powdery mildew. While powdery mildew of wheat and barley has not been thought to be a serious disease of small grains in the past, Virginia growers are becoming very much concerned about the losses caused by this disease during the last few years.
VIRGINIA EXTENSION SERVICE, BLACKSBURG. JUNE 10.

## WINTER INJURY TO CLOVER AND ALFALFA IN VIRGINIA

By S. B. Fenne

Extensive damage, and in some cases total losses, have occurred in some clover and alfalfa fields, particularly in Northern Virginia. Careful laboratory examination showed the presence of large numbers of Fusarium spores and masses of Rhizoctonia mycelium. It is quite evident, however, that the major damage was caused by adverse weather conditions in combination with Fusarium and Rhizoctonia. Many farmers incorrectly blamed the killing of the clover and alfalfa to the severe infestation of the clover leaf curculio and to aphids, which were present in many fields.

In many parts of the State, especially in Northern Virginia, clover and alfalfa started early growth in the unusually warm weather during January. Following this warm period came snow and many days of extreme cold. In those alfalfa and clover fields not protected by windbreaks, and where the snow was blown off the ground, severe injury and killing occurred to unprotected clover and alfalfa. In many fields stands survived in the low protected areas; however, where the snow had blown off and on slopes exposed to the afternoon sun, the clover was killed. In other fields protected by trees, and along margins of fields protected by windbreaks, clover remained, while further away from such protected areas 75 to 90 percent of the clover was killed.
VIRGINIA EXTENSION SERVICE, BLACKSBURG. JUNE 10.

## TOMATO DISEASES IN ARKANSAS

By V. H. Young

On tomatoes grown for plants there were reports of early blight [Alternaria solani] stem cankers and leaf spot. Southern blight [Sclerotium rolfsii] was reported on one small area and one field was found affected with root knot [Heterodera marioni].

The very wet weather has been very favorable for diseases in the green wrap area of Southeastern Arkansas. Bacterial spot [Xanthomonas vesicatoria], bacterial canker [Corynebacterium michiganense], and early blight have given some trouble.

One home garden planting at Hope was found to be affected with bacterial wilt [Bacterium solanacearum]. This is the first report of this disease in several years.
UNIVERSITY OF ARKANSAS, FAYETTEVILLE. JUNE 3.

## DISEASES OF STONE FRUITS OBSERVED IN ARKANSAS

By V. H. Young

Peach leaf curl [Taphrina deformans] was of slight importance this year. The blossom blight stage of brown rot [Monilinia fructicola] was reported to be fairly severe in a few orchards. Specimens from a 100-acre planting of 2-year old peach trees near Nashville, Arkansas, show very severe defoliation resulting from bacterial spot, Xanthomonas pruni. This disease has already appeared in a severe form on the fruits in a 20-acre planting of Japanese plums near Prescott and it looks as though at least half of the crop will be lost.

Death of a considerable number of peach trees from winter injury is reported from the largest Arkansas peach area in the vicinity of Nashville.
UNIVERSITY OF ARKANSAS, FAYETTEVILLE. JUNE 3.

## CHECK LIST REVISION

Freeman Weiss

### NICANDRA (SOLANACEAE)

NICANDRA PHYSALODES (L.) Gaertn., APPLE-OF-PERU. Annual of Peru; grown for ornament in old gardens and sometimes escaped, chiefly in the East and South.

Cercospora physaloides Ell., leaf spot. Ind.
Phymatotrichum omnivorum (Shear) Dug., root rot. Tex.

Mosaic -- unidentified virus(es). Ida., Iowa, Ky., Wash., Wis. Systemic infection by inoculation with the following viruses has been demonstrated: cucumber mosaic; potato mottle and veinbanding; tobacco etch, mosaic, ringspot, and streak; tomato spotted wilt.

### NICOTIANA (SOLANACEAE)

NICOTIANA spp. (introduced). Herbs of South America, the following cultivated for ornament as annuals: N. ALATA Link & Otto (1), N. SYLVESTRIS Speg. (2), N. x SANDERAE S. Wats. (3). Also N. GLAUCA Graham, TREE TOBACCO (4), an arborescent, grown for novelty in borders and as specimens in the far South, naturalized in Calif. and Tex., source of insecticidal alkaloid anabasine; and N. LONGIFLORA Cav. (5), formerly grown in gardens and sometimes escaped in Tex. and southward.

Alternaria longipes (Ell. & Ev.) Mason, leaf spot. Tex. (4)
Heterodera marioni (Cornu) Goodey, root knot. Fla. (1, 3, 4). ? Calif.
Oidium sp. (? Erysiphe), powdery mildew. Ky. (1)
Peronospora tabacina Adam, downy mildew. Calif., Tex. (4) Also experimental infection (2, 4)
Phomopsis nicotianae Fairm., on stems. Calif. (4)
Phymatotrichum omnivorum (Shear) Dug., root rot. Tex. (4)

Curly top -- virus (Chlorogenus eutetticola Holmes, Beta virus 1 K.M.Sm.). Tex. (5)
Leaf roll -- unidentified virus. P. R. (5)
Mosaic -- virus (Marmor tabaci Holmes, Nicotiana virus 1 K.M.Sm.). Natural infection not reported but systemic infection results from artificial inoculation with green and yellow strains (1, 2,3,4,5)
Ringspot -- virus (Marmor annularium McK., Nicotiana virus 12

K.M.Sm.). Systemic infection from artificial inoculation (2,3,4,5)

NICOTIANA spp., miscellaneous. Native annuals, as N. BIGELOVII S. Wats., INDIAN TOBACCO (1), N. REPANDA Willd. ex Lehm. (2), N. TRIGONOPHYLLA Dunal, DESERT T. (3), of the Southwestern States; (1) chiefly in Calif., (2) in Tex., (3) from Tex. to Calif. Both (1) and (3) were used by the Indians for smoking.

Cercospora nicotianae Ell. & Ev., leaf spot. Tex. (2).
Oidium sp., powdery mildew. N. Mex. (3).
Peronospora tabacina Adam, downy mildew. Nev. (1), Tex. (2)
Puccinia aristidae Tracy (0,I), rust. Ariz. (3). II and III on various grasses.
Pythium ultimum Trow, damping-off. Calif. (1,3).
Uredo nicotiana Anas., Sacc. & Splendore (II), rust. Calif., Nev. (1)

NICOTIANA GLUTINOSA L. Annual of S. America, used in tobacco breeding, especially for mosaic resistance, also in virus diagnosis

Thielaviopsis basicola (Berk. & Br.) Ferr., black root rot. Va., Wis.

Mosaic -- virus(es). Natural infection not reported but this host is commonly used in experiments. The characteristic reaction to tobacco mosaic virus is the production of primary necrotic lesions without systemic spread except at high temperature; this occurs with all strains of this virus. Inoculation with the cucumber mosaic and tobacco veinbanding viruses causes systemic mottling.
Ringspot -- virus (Marmor annularium McK., Nicotiana virus 12 K.M.Sm.). Natural infection not reported but artificial inoculation causes systemic necrotic spotting.

NICOTIANA RUSTICA L., PEASANT'S TOBACCO. Annual or perennial, probably indigenous to Mexico, but long cultivated by the North American Indians and occasionally persisting in the Eastern and South Central States; the principal tobacco cultivated for smoking in some parts of Europe and Asia.

Pseudomonas tabacum (Wolf & Foster) Stapp, wildfire. Pa.

Curly top -- virus (Chlorogenus eutetticola Holmes, Beta virus 1 K.M.Sm.). Calif., Tex.
Leaf roll -- unidentified virus. P. R.
Mosaic -- virus (Marmor tabaci Holmes, Nicotiana virus 1 K.M.Sm.). Natural infection not reported but artificial inoculation

(Nicotiana rustica)
causes systemic necrosis. Systemic infection also results from inoculation with etch, ringspot, streak, and veinbanding viruses, q.v. under N. tabacum; and also potato yellow dwarf and turnip mosaic viruses.

Ringspot -- virus (Marmor annularium McK., Nicotiana virus 12 K.M. Sm.). Natural infection not reported but artificial inoculation causes systemic chlorotic and necrotic spotting.

Yellows -- virus (Chlorogenus callistephi Holmes, Callistephus virus 1 K.M.Sm.). N. Y. Also the var. californicus Holmes, Callistephus virus 1A K.M.Sm., in Calif.

NICOTIANA TABACUM L., TOBACCO. Annual (or rarely perennial) of tropical America cultivated since prehistoric times by the aborigines and, since the discovery of America, throughout the world. In the U. S. its culture extends from Mass. to Fla., Tex. and Minn., but the principal producing States are N. Car., Ky., Va., Tenn., S. Car., Ga., Md., Ohio, Pa., Wis., Conn. and Fla.

Actinomyces sp., associated with mold (mustiness) of cured tobacco, Mass., Wis.

Agrobacterium tumefaciens (E.F.Sm. & Town.) Conn, crown gall, sometimes fasciation and witches'-broom. Natural occurrence in the field not reported but tobacco is a commonly used experimental host.

Alternaria longipes (Ell. & Ev.) Mason, brown spot. Fla., Ga., Md., Mo., N. & S. Car., Pa., Va.

A. tabacina (Ell. & Ev.) Hori, Alternaria leaf spot, white spot (in part). Conn., Mass., Mo., N. Car., Ohio, Pa. Perhaps a form of the following:

A. tenuis Nees ex Cda., secondary leaf spot, pole rot (in curing sheds). Conn., Ga., Wis.

Ascochyta nicotianae Pass., leaf spot. S. Car., Tenn., Wash., P. R.

Aspergillus spp., especially A. candidus Lk. ex Fr. and A. glaucus Lk. ex Fr., causing mold of manufactured tobacco; A. niger v. Tiegh. causing black rot of leaves during curing; these and others causing shed burn and pole rot. Cosmopolitan. A. niger and A. oryzae (Ahlburg) Cohn are also reported in association with stem rot of field plants in Fla.

Asterocystis radicis De Wild., root rot. N. Car. Perhaps identical with Olpidium brassicae (q.v.) but not confirmed.

Bacterium solanacearum E.F.Sm., bacterial wilt, Granville wilt, slime disease. Atlantic Coast States from Md. to Fla., and P. R. Rare inland but reported from Ohio and Okla.

Botryosporium pulchrum Cda., white mold of cured tobacco. Conn.

Botrytis cinerea (Pers. ex Fr.), seedling blight, N. Car.; gray mold, shed burn, pole rot (of cured tobacco), Conn., Ky.,

(Nicotiana tabacum)
N. Car., Va.

Cercospora nicotianae Ell. & Ev., frog-eye leaf spot. Mass. to Fla., La., and Wis.; P. R.

Cladosporium herbarum Lk. ex Fr., blossom spot, Conn.; shed mold, Pa.

Colletotrichum sp. (? C. nicotianae Averna-Sacca), anthracnose. Md., Pa., Va., P. R.

C. destructivum O'Gara, anthracnose. Ky.

Conopholis americana (L. f.) Wallr., parasitic on roots. Tenn.

Corynebacterium fascians (Tilford) Dowson, fasciation. Ohio

Cuscuta spp. (? C. epithymum Murr.), dodder. Occasional in seedbeds and fields. Ky., N. Car.

Erwinia aroideae (Town.) Holland, blackleg, hollow-stalk rot. Occasional from Mass. to N. & S. Car., Ky., Wis. Also reported as Erwinia carotovora (L.R.Jones) Holland.

Eucephalobus oxyuroides (De Man) Steiner, root nematode. S. Car.

Erysiphe cichoracearum DC., powdery mildew. Pa.
? Erysiphe sp., Ky.

Fusarium oxysporum Schlecht. f. nicotianae (J.Johnson) Snyder & Hansen, Fusarium wilt. Occasional from Mass. to Fla., Miss., and Wis., also P. R.; most frequent in N. & S. Car., Va., and Md. Other physiologic races of this sp., as f. batatas (Wr.) Snyder & Hansen and f. vasinfectum (Atk.) Snyder & Hansen, are similarly pathogenic and are probably involved in field infections.

Gloeosporium sp., anthracnose. See Colletotrichum.

Heterodera marioni (Cornu) Goodey, root knot. General from Va. to Ky. and southward, also reported in Conn., Pa., Ohio, Calif., Hawaii

Macrophomina phaseoli (Maubl.) Ashby, charcoal rot. Ga., Ky., Md.

Mucor spp. (M. mucedo L. ex Fr., M. racemosus Fres.), mold of cured tobacco and manufactured products. Cosmopolitan.

Olpidium brassicae (Wor.) Dang., in roots of seedlings. Wis. See also Asterocystis radicis.

Orobanche ludoviciana Nutt. and O. ramosa L., broom-rape. Ky., Ohio, occasional in other tobacco areas.

Penicillium spp., mold of cured tobacco, mustiness of manufactured products. Cosmopolitan. Sometimes reported as P. glaucum Lk., a name of no definite standing.

Peronospora tabacina Adam, downy mildew, "blue mold." Mass. to Fla., Tex. and Ind.

Phyllosticta nicotianae Ell. & Ev., leaf spot. Ala., Fla., Ga., Mass., N. & S. Car., Va., P. R.; chiefly on seedlings. Sometimes reported as P. nicotianae Ell. & Ev. but not originally so spelled. See also Ascochyta.

Phymatotrichum omnivorum (Shear) Dug., root rot. Tex.

Phytophthora parasitica Dast. var. nicotianae (Breda de Haan)

(Nicotiana tabacum)

Tucker, black shank. Ala., Fla., Ga., Ky., Md., N. Car., Tenn., Tex., Va., P. R.

Pratylenchus pratensis (De Man) Filip., meadow nematode, brown root rot (in part), ? coarse root. Conn., Fla., Ga., Ky., N. & S. Car., Va.

Pseudomonas angulata (Fromme & Murray) Stapp, angular leaf spot, blackfire (in part). General from Mass. to Fla., La. and Wis., also P. R.; especially in the Southeastern and South Central States.

P. mellea (J.Johnson) Stapp, Wisconsin bacterial leaf spot. Ky., Tenn., Wis., ? Conn.

P. tabacum (Wolf & Foster) Stapp, wildfire. General, from Mass. and Vt. to Fla., La., and Wis. Similar diseases have been ascribed to P. fluorescens Mig., P. polycolor Clara, and P. aeruginosa (Schroet.) Mig., all closely related organisms.

Pythium spp., damping off, bed rot, stem burn of seedlings; sometimes root rot of field plants. Commonly attributed to P. debaryanum Hesse, and reported in Conn., Ky., Ohio, Pa., Wis., P. R. Other spp. identified in this connection are P. aphanidermatum (Edson) Fitz. in Conn. and Mass.; P. polymorphon Sideris and P. ? rostratum Butl. in Ky.; P. ultimum Trow in Mo. and Ohio.

Rhizoctonia solani Kuehn, damping off, bed rot, sore shin (of seedlings); sometimes stem rot of field plants. Cosmopolitan but infrequent. The basidial stage, Pellicularia filamentosa (Pat.) Rogers, has not been reported on field plants but has been observed in seedbeds.

Sclerotinia minor Jagger, seedling blight. Conn.

S. sclerotiorum (Lib.) DBy., seedling blight, bed rot. Conn., Ky., N. Car.

Sclerotium bataticola Taub. See Macrophomina phaseoli.

S. rolfsii Sacc., southern blight, stem rot. Fla., Ga., N. & S. Car., Va.

Septomyxa affinis (Sherb.) Wr., blotch, scab. Conn., Fla., Ky., Ohio, Wis.

Thielaviopsis basicola (Berk. & Br.) Ferr., black root rot. General

Toruloidea nicotianae (Pezzolato & Sacc.) Sumstine, mold of cured tobacco. Ky., Ohio

Verticillium albo-atrum Reinke & Berth., Verticillium wilt. Tenn.

Broad ringspot -- unidentified virus. Wis.

Curly dwarf -- suspected virus, perhaps streak, or a distorting strain of mosaic. Conn., Wis.

Curly top -- virus (Chlorogenus eutetticola Holmes, Ruga verrucosans Carsner & Bennett, Beta virus 1 K.M.Sm.). Calif., N. Mex., Ore.

Etch -- virus (Marmor erodens Holmes, Foliopellis erodens [Holmes]

(Nicotiana tabacum)

Valleau, Nicotiana virus 7 K.M.Sm.). Ga., Ky., N. J., N. Y., Ohio. Several strains of varying degrees of severity have been distinguished by ternary names.

Leaf roll -- unidentified virus. P. R.

Mosaic, common, or calico (including aucuba or yellow mosaic and various necrotic, burning, and distorting strains) -- virus (Marmor tabaci Holmes [more precisely cited as M. tabaci (Holmes ex Valleau) McK.], Musivum tabaci [Holmes] Valleau, Nicotiana virus 1 K.M.Sm.). General. Numerous strains, differing in symptoms on particular varieties of tobacco, occur in nature; some of these have been distinguished in laboratory cultures by ternary names as var. aucuba, deformans, lethale, etc., but in nature appear too variable to be thus maintained. A different basis of subdivision is afforded by a distinctive host range, e.g. the plantain strain, M. tabaci var. plantaginis Holmes, reported on tobacco in Ky.

Mosaic, cucumber -- virus (Marmor cucumeris Holmes, Murialba cucumeris [Holmes] Valleau, Cucumis virus 1 K.M.Sm.). Numerous strains reported, e.g. "puffed" in Ky. and Ohio, mild or bleaching mosaic in Wis., also reported in Conn., Fla., Minn., and P. R.; probably widespread but not always distinguished from common mosaic.

Mottle -- unidentified virus. P. R.

Necrosis -- virus (Marmor lethale Holmes). Occurrence limited to greenhouse cultures in N. J.

Ringspot -- virus (Annulus tabaci Holmes, Marmor annularium McK., Nicotiana virus 12 K.M.Sm.). Mass. and N. Y. to Ga. and Ind. Green, yellow, and other distinctive strains occur in nature, and some have been given ternary names.

Spot necrosis -- virus(es). Ky., Wis. Probably due to potato latent-mottle virus (Marmor dubium Holmes, Solanum virus 1 K.M.Sm.) alone or in combination with veinbanding virus. Systemic necrotic spotting is also induced in tobacco by artificial inoculation with alfalfa mosaic virus, including the potato calico strain, and the celery calico virus.

Spotted wilt -- Virus (Lethum australiense Holmes). Calif.

Streak -- virus (Annulus orae Holmes, Tractus orae [Holmes] Valleau, Nicotiana virus 8 K.M.Sm.). Conn., Ind., Ky., Mo., Ohio, Tenn., Wis.

Veinbanding -- virus (Marmor cucumeris var. upsilon Holmes, Murialba venataenia Valleau, Solanum virus 2 K.M.Sm.). Ky., Fla., and probably elsewhere in tobacco grown in proximity to potatoes. Sometimes occurs in combination with cucumber mosaic virus.

Brown root rot -- cause not definitely determined, perhaps meadow nematode (see Pratylenchus pratensis) but usually attributed to toxic crop residues, excess of cellulose materials in soil,

(Nicotiana tabacum)

nitrogen deficiency, and various fungi (see Macrophomina phaseoli and Pythium). Conn., Ky., Md., Mass., Pa., Va., Wis.

Boron deficiency (top disease), also boron toxicity (stunting). N. Car.

Calcium deficiency (apical necrosis, leaf curling). Conn., Md.

Chlorine toxicity (dwarfing, upward rolling of leaves) -- caused by excess of chlorides in fertilizer. Fla., Ga., N. Car.

Chlorosis -- various nutritional deficiencies, commonly of potassium and magnesium (sand drown, q.v.), usually in light, acid soils; sometimes of iron. Also caused by low temperature. Conn., Fla., Ga., Ky., Md., N. & S. Car.

Club root -- cause unknown, tumor-forming virus (Aureogenus magnivena Black) suggested. Ky.

Coarse root -- root swelling and loss of lateral roots perhaps caused by meadow nematode (Pratylenchus pratensis). Fla.

Drought spot, "rim fire" (interveinal necrosis) -- deficiency of soil moisture, sometimes accentuated by chlorine and potassium deficiency. Ky., N. & S. Car., Va.

Frenching, polyphylly (leaf filiformity, shoot proliferation, sometimes chlorosis) -- cause unknown but believed nutritional, sometimes associated with soil alkalinity and nitrogen deficiency. Occasional in all tobacco areas.

Magnesium deficiency, "sand drown" (yellowing and interveinal chlorosis in basal leaves progressing upward). Conn., Ga., Md., N. & S. Car., Va.

Manganese toxicity (interveinal chlorosis, dwarfing). Ky.

Phosphorus deficiency (necrotic spotting, leaf-curling, ? red "rust"). Ky., N. Car.

Potassium deficiency (interveinal chlorosis, leaf curling, marginal burning). Conn., Fla., Ky., Md., Mass., N. & S. Car., Va., Wis.

Ruffle leaf -- cause unknown, but believed genetic; resembles virus leaf curl (Ruga tabaci Holmes), not known in U. S. Ga., N. Car., Va.

Wet-weather spot, physiological blackfire -- associated with heavy rainfall and deficient drainage. Ky., Ohio, S. Car., Tenn., Va.

PETUNIA (SOLANACEAE)

x PETUNIA HYBRIDA Vilm., GARDEN PETUNIA (1). Numerous horticultural forms derived from P. AXILLARIS (Lam.) BSP., WHITE P. (2), P. VIOLACEA Lindl., VIOLET P. (3), annuals of Argentina, widely cultivated for ornament; these sometimes escaping from gardens and persisting. P. PARVIFLORA Juss. (4), indigenous or introduced from S. America, occurs in waste ground in the Gulf States and Southwest.

(Petunia)

Ascochyta petuniae Speg., leaf spot. Tex. (1)
Bacterium solanacearum E.F.Sm., bacterial wilt. Fla., Hawaii (1)
Cercospora petuniae Muller & Chupp, leaf blotch. Fla., Okla. (1)
Choanephora conjuncta Couch, on old flowers. Ga. (1)
Cuscuta spp., dodder. Md., N. J., Okla., Tex., W. Va. (1,2,3)
Fusarium sp., wilt. Wash. (1)
Heterodera marioni (Cornu) Goodey, root knot. General in the South, also Ariz., Calif., Hawaii; occasional in greenhouses in the North (1,2,3).
Oidium sp., powdery mildew. Minn., N. Y., W. Va.
Puccinia aristidae Tracy (0,I), rust. Ariz. (4)
Rhizoctonia solani Kuehn, damping off, stem rot. Fla., N. J., N. Y., N. Car., Okla., Pa., Tex. (1)
Sclerotinia ? sclerotiorum (Lib.) DBy., Sclerotinia wilt. Wash.
Stemphylium botryosum Wallr., black stem (secondary). Tex. (1)

Curly top -- virus (Chlorogenus eutetticola Holmes, Beta virus 1 K.M.Sm.). Calif., Ore.
Mosaic -- virus (commonly Marmor tabaci Holmes, Nicotiana virus 1 K.M.Sm.; sometimes Marmor cucumeris Holmes, Cucumis virus 1 K.M.Sm.). General (1,3). Systemic infection also results from artificial inoculation with the following viruses: alfalfa mosaic including the potato calico strain, potato mottle, potato severe mosaic, tobacco etch, tobacco veinbanding, and turnip mosaic.
Ringspot -- virus (Marmor annulerium McK., Nicotiana virus 12 K.M. Sm.). Va. (3)
Yellows -- virus (Chlorogenus callistephi Holmes, Callistephus virus 1 K.M.Sm.). Mich. (1). Also the var. californicus Holmes, Callistephus virus 1A K.M.Sm., Calif. (1,3)
Spotted wilt -- virus (Lethum australiense Holmes, Lycopersicon virus 3 K.M.Sm.). Calif.

Fasciation -- cause not determined, perhaps Corynebacterium fascians (Tilford) Dowson. Pa. (1), Ohio

PHYSALIS (SOLANACEAE)

PHYSALIS spp., GROUNDCHERRY, HUSK-TOMATO. Annual or perennial herbs, including many native spp. of no economic importance except as weeds, and others, introduced or native, that are cultivated for ornament or edible fruit, as P. ALKEKENGI L., CHINESE LANTERN-PLANT (1), P. IXOCARPA Brot., TOMATILLO (2), P. PERUVIANA L., CAPE-GOOSEBERRY (3), P. PUBESCENS L. (4), and other spp. (5). Some of the perennial spp. are common overwintering hosts of viruses that affect various crops.

(Physalis)

Aecidium physalidis Burr. (0,I), rust. Wis. to Tex., N. Mex. and Colo. (5), chiefly on P. heterophylla Nees, P. lanceolata Michx., P. longifolia Nutt., and P. virginiana Mill.

Alternaria solani (Ell. & G.Martin) Sor., leaf spot.

Cercospora diffusa Ell. & Ev., leaf spot. Ill., Kans., Wis. (5)

C. physalicola Ell. & Barth., leaf spot. P. R. (3); Conn. to Ga., Tex. and Nebr. (5)

C. physalidis Ell., leaf spot. Ga., Ind., Wis. (4); Ind., Kans., Ky., Mich., Nebr., Wis. (5)

Ditylenchus dipsaci (Kuehn) Filip., leaf and stem nematode. Calif. (4), Utah (5)

Entyloma australe Speg., white smut. Conn., N. Y. (1); Mass. to Miss., N. Mex., and N. Dak. (4,5)

Heterodera marioni (Cornu) Goodey, root knot. Fla. (2,3), Ala. (5)

Irene inermis (Kalch. & Cke.) Theiss. & Syd., black mildew. Hawaii (3)

Leptosphaeria physalidis Ell. & Ev., leaf spot. Ky. (4)

Phyllosticta physaleos Sacc., leaf spot. Conn. (1)

Phymatotrichum omnivorum (Shear) Dug., root rot. Tex. (5)

Pseudomonas angulata (Fromme & Murray) Stapp, angular leaf spot. Ky. (5). On P. subglabrata Mackenzie & Bush

P. tabacum (Wolf & Foster) Stapp, wildfire. Pa. (5). On P. virginiana

Puccinia physalidis Pk. (III), rust. Colo., Iowa, Minn., Nebr., Wis. On P. heterophylla, P. lanceolata, and P. virginiana

Sclerotium rolfsii Sacc., southern blight. Fla. (4)

Septoria sp., leaf spot. Nebr. (5)

Stemphylium solani Weber, gray leaf spot. Fla. (4)

Verticillium albo-atrum Reinke & Berth., wilt. N. Y. (1)

Curly top -- virus (Chlorogenus eutetticola Holmes, Beta virus 1 K.M.Sm.). Calif., on P. wrightii A.Gray

Mosaic -- virus. In part Marmor cucumeris Holmes, Cucumis virus 1 K.M.Sm., reported in Fla., Ind., Iowa, Ky., N. Y., Tex., Wis. (1,3,4,5, especially on P. heterophylla and P. subglabrata). M. tabaci Holmes, Nicotiana virus 1 K.M.Sm., Conn., Ind., Ky., N. Y. (1,3,4,5). Natural infection with potato rugose mosaic virus is reported on P. heterophylla and P. virginiana in Wis. Systemic infection from artificial inoculation is reported with the following viruses: potato mottle (1); potato yellow dwarf (4, P. heterophylla); tobacco etch (4, P. heterophylla); tobacco ringspot (P. angulata L.).

QUINCULA (SOLANACEAE)

QUINCULA LOBATA (Torr.) Raf., PURPLE-FLOWERED GROUNDCHERRY. Peren-

(Quincula)
nial herb of plains and mesas in the Southwest, may be grown for ornament in rockeries.

Cercospora physalidis Ell., leaf spot. Kans.
Puccinia aristidae Tracy (O,I), rust. Colo.

SALPIGLOSSIS (SOLANACEAE)

SALPIGLOSSIS SINUATA Ruiz. & Pav., PAINTED-TONGUE. Annual herb of Chile grown for ornament in gardens and under glass.

Fusarium sp., wilt. Wash.
Heterodera marioni (Cornu) Goodey, root knot. N. Y.
Pratylenchus pratensis (De Man) Filip., root nematode. N. Y.
Verticillium alto-atrum Reinke & Berth., wilt. N. Y.

Yellows -- virus (Chlorogenus callistephi var. californicus Holmes). Calif.

SCHIZANTHUS (SOLANACEAE)

SCHIZANTHUS spp. (chiefly S. PINNATUS Ruiz. & Pav.), BUTTERFLY-FLOWER. Annual herb of Chile, grown for ornament in gardens and under glass.

Colletotrichum schizanthi C.N.Jensen & V.B.Stewart, anthracnose. N.Y.
Heterodera marioni (Cornu) Goodey, root knot
Pythium ultimum Trow, damping off. Mo.
Rhizoctonia solani Kuehn, damping off, root rot. N. Y.
Sclerotinia sclerotiorum (Lib.) DBy., stem rot. Miss., Mo.

Spotted wilt -- virus (Lethum australiense Holmes, Lycopersicon virus 3 K.M.Sm.). Tex.
Yellows -- virus (Chlorogenus callistephi Holmes, Callistephus virus 1 K.M.Sm.). N. J.

DIVISION OF MYCOLOGY AND DISEASE SURVEY

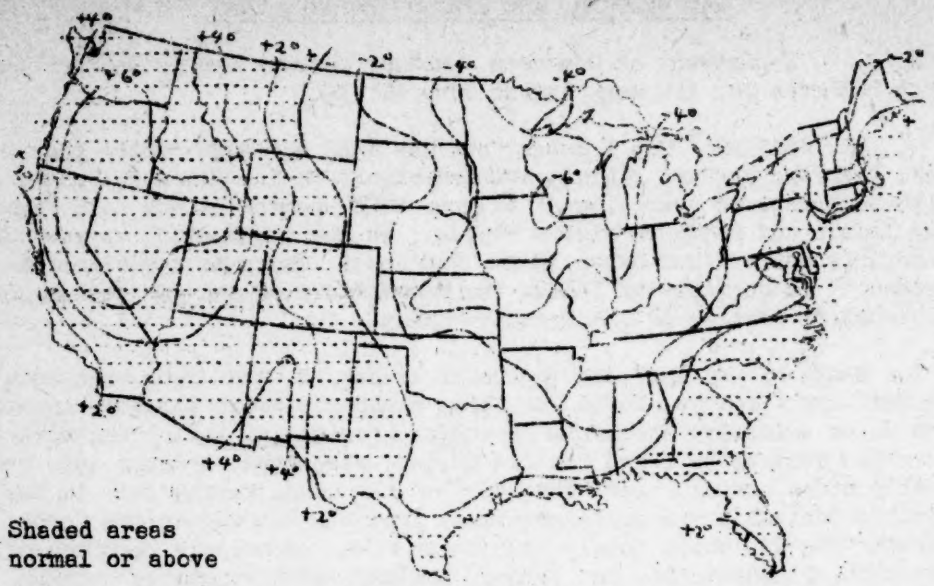
## MAY WEATHER, AND SPRING WEATHER, 1947

From U. S. Department of Commerce, Weather Bureau, Weekly Weather and Crop Bulletin for the week ending June 10, 1947

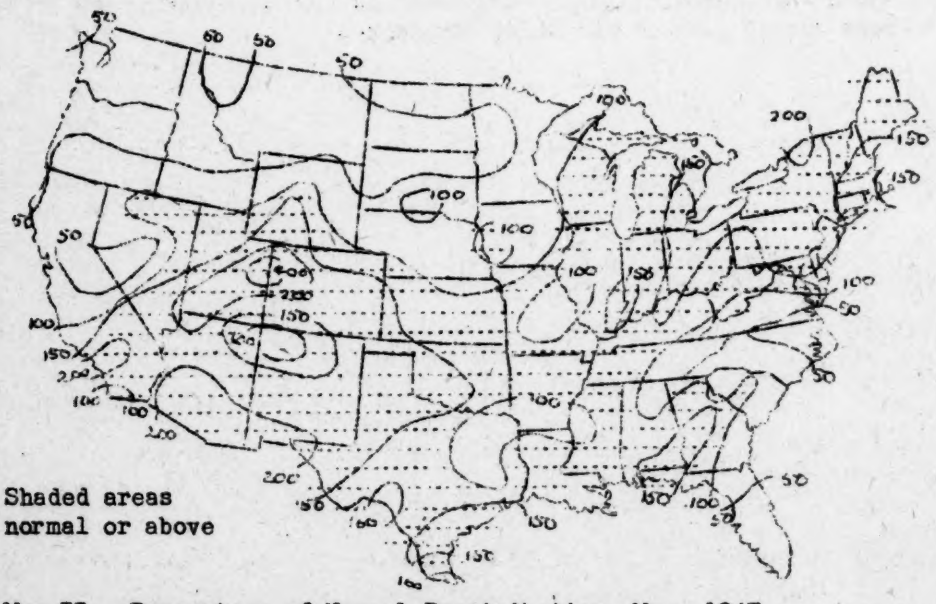
MAY WEATHER: Map I shows that May 1947 was much cooler than usual from the western Plains eastward almost to the Atlantic Coast, with temperatures averaging 4° or more below normal in the Lake region and Middle and Northern Plains States. On the other hand, it was considerably warmer than usual in the far West. The plus anomalies exceeded 6° in sections of Idaho, the Great Basin of the far West, and the eastern portion of the Pacific States.

The month of May 1947, as indicated by Map II, was dryer than usual in southern Virginia, North Carolina, along the south Atlantic coast, and in an extensive area from the upper Mississippi Valley westward over the Northwestern and Pacific States; elsewhere, amounts were generally above normal. Less than half of the usual amount fell in the Florida Peninsula and quite generally from the Dakotas to the North Pacific States, while totals were twice their normals in sections of New York, Pennsylvania, New Jersey, southern Utah, southern Arizona, southern New Mexico, and on the north Texas Coast.

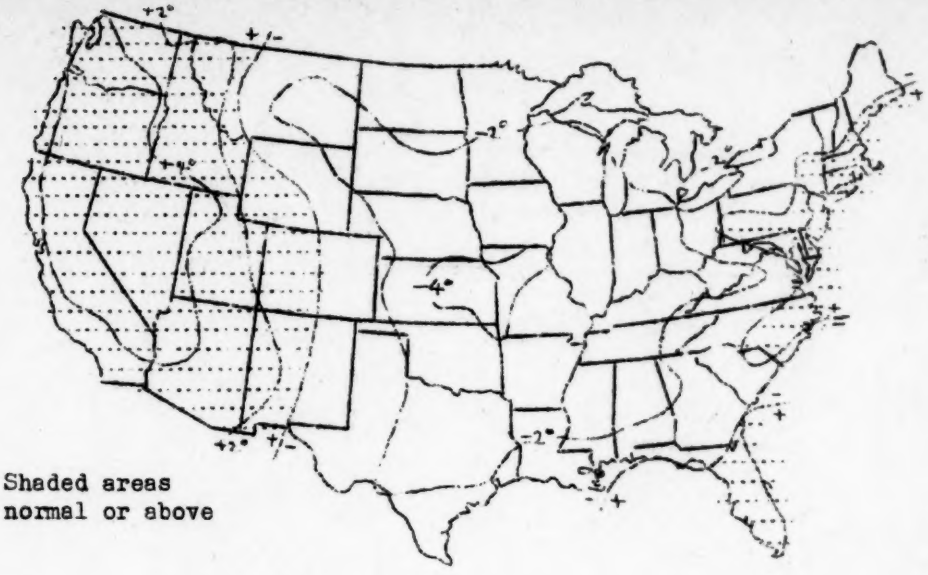
SPRING WEATHER: May III shows that the meteorological spring of March through May, 1947, averaged from 2° to more than 4° cooler than usual from the middle and southern portions of the western Plains eastward over the Central Valley. Temperatures for the season were 2° to 5° above normal west of the Rocky Mountains.



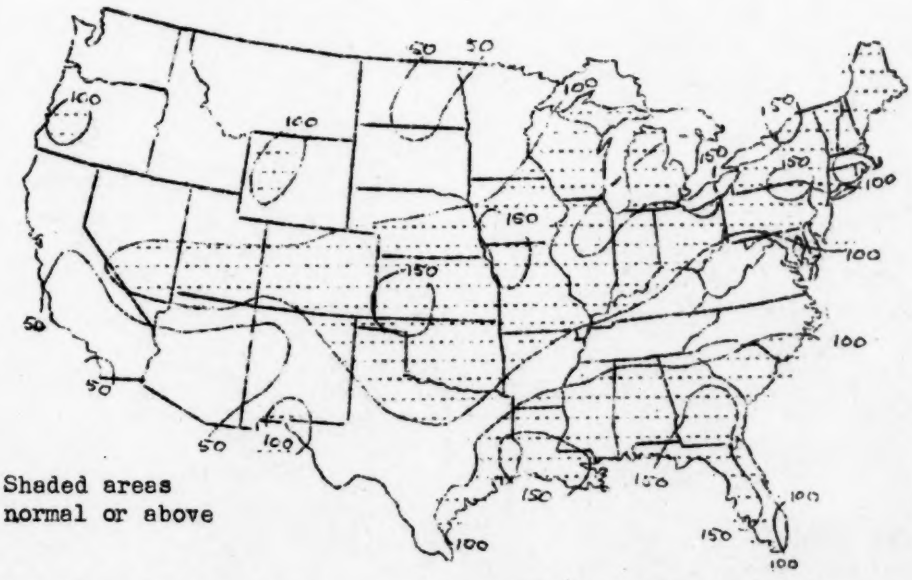

Map I. Departure of Mean Temperature from Normal, May, 1947




Map II. Percentage of Normal Precipitation, May, 1947




Map III. Departure of Mean Temperature from Normal, Spring (March-May), 1947




Map IV. Percentage of Normal Precipitation, Spring (March-May), 1947

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